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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/821,607	04/09/2004	Ronald J. Fleming	1531-17	1559
30565	7590	09/08/2004	EXAMINER	
WOODARD, EMHARDT, MORIARTY, MCNETT & HENRY LLP BANK ONE CENTER/TOWER 111 MONUMENT CIRCLE, SUITE 3700 INDIANAPOLIS, IN 46204-5137			ROGERS, DAVID A	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/821,607	Applicant(s) FLEMING, RONALD J.	
	Examiner David A. Rogers	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 and 15 is/are allowed.
- 6) ☒ Claim(s) 16-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>20040409</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16-18 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the known prior art environmental wind tunnel operations such as shown by the Environmental Tunnel at Goldstein Research Laboratory (GRL).

GRL discloses a wind tunnel, which is a flow testing apparatus. In particular, the wind tunnel is described on GRL's website at

<http://www.flow-science.eng.man.ac.uk/et.htm>

and

<http://www.flow-science.eng.man.ac.uk/etdetail.htm>

The GRL environmental wind tunnel has a turntable that allows test articles (components) to be rotated 0° to 360°. By rotating the component the operator can easily replicate the required flow testing for the component's full expected environmental/operating conditions. That is, it is known in wind tunnel testing to obtain performance data from the full operating envelope of a component, and the provision of a turntable allows the operator to accomplish this.

For example, the rotor blades for helicopters must be tested by subjecting the airfoil to airflows whose airstream approach angle varies from 0° to 360° relative to the nominal forward flying direction of the aircraft. Propellers that operate to both push and pull must be tested under both conditions. A turntable, such as the one shown by GRL, allows for quick, easy, and precise realignment of the component.

It is also known to measure the flow data, e.g. dynamic pressure, static pressure, velocity, and then to use that information to determine a characteristic of the component, e.g., wing lift, structural strain, regions on an airfoil prone to turbulent flow, stall angle, angle of attack resulting in flow boundary layer separation.

Finally, it is known in flow testing to compare test results from various operating simulations. For example, testing a propeller under one flow criteria, e.g. 0.5 Mach number, 0° approach angle, may show excellent results, while the flow testing under modified criteria, e.g. 0.5 Mach, 180° approach angle, shows poor performance. That is the reason for flow testing under the full operating envelope: to determine where the test article excels and where it lacks acceptable performance. This known use of the test data would result in the test article being deemed defective for its intended use if it did not have acceptable performance in one or more tests.

Accessing the below listed URLs will allow the applicant can see additional examples of testing using turntables with test articles:

- <http://www.aerolab.com/ewt.htm>
- <http://techreports.larc.nasa.gov/ltrs/PDF/1999/mtg/NASA-99-6spie-lbs.pdf>
- http://www.italiaspeed.com/2004/cars/ferrari/07/formula_uomo.html
- <http://www.epa.gov/ttn/emc/ctm/ctm-019.wpd>
- http://www.bihrl.com/facilities_lamp.html
- <http://www.structuremag.org/archives/2003/november/windtunneltesting.pdf>
- <http://www.sportrider.com/tech/windtunneltest/>
- <http://www.daimlerchrysler.com/dccom/0,,0-5-7182-1-9379-1-0-0-0-0-66-7165-0-0-0-0-0-0,00.html>
- http://www.bmtfm.com/wind_tunnel_facilities.html

Some of the above links are to references that post-date the applicant's priority date. However, these links are provided to show the common knowledge/common use of wind tunnels that one of ordinary skill in the art would know. Also, the link to Bihrl above provides an excellent example (video) of using a turntable to modify the position of the test article. Additional cited prior art (see form PTO-892) shows additional uses of wind tunnels/flow benches.

It would have been obvious to one of ordinary skill in the art to provide a method for flow testing components using a first flow direction and the a second flow direction, determining properties of the component from the flow characteristics, and to compare the test data to determine if the component performed in an acceptable manner.

Allowable Subject Matter

3. Claims 14 and 15 are allowed.

Conclusion

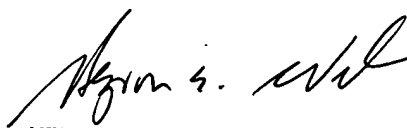
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Rogers whose telephone number is (571) 272-2205. The examiner can normally be reached on Monday - Friday (0730 - 1600).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron E. Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


da

02 September 2004


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800